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10/662,258	09/15/2003	**Shih-Zheng Kuo**	9585-0280	9035

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Stolowitz Ford Cowger LLP
621 SW Morrison St
Suite 600
Portland, OR 97205

EXAMINER	
KAU, STEVEN Y	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,258	KUO, SHIH-ZHENG	
	Examiner	Art Unit	
	STEVEN KAU	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 25, 2009 has been entered.

Response to Remark/Arguments

2. Applicant's arguments with respect to claims 1-10 and 12-24 have been fully considered but are moot in view of the new ground(s) of rejection (or and the reply to the Remarks/Arguments is in the following:)

- Applicant's arguments with respect to Claims 1-10, and 12-24 have been fully considered but are moot in view of the new ground(s) of rejection due to the amendments.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement

thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-9 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent[1] and recent Federal Circuit decisions[2] indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claims recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example, Claim 1 is directed to a method for image compensation, steps recite, "scanning a document to determine a plurality of actual gray level values for a plurality of pixels scanned from the document; scanning a continuous longitudinal calibration pattern while scanning the document to determine a correctional gray level value associated with the calibration pattern; determining a compensational gray level value with respect to the actual gray level value for each of the pixels, wherein the compensational gray level value is based at least in part on the correctional gray level and the actual gray level values for each of the pixels scanned from the document; and compensating for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels." The applicant has not provided

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[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

[2] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

explicit and deliberate definitions of which particular apparatus is used for image compensation, i.e. executing steps of "scanning a document to determine a plurality of actual gray level values", "scanning a continuous longitudinal calibration pattern", "determining a compensational gray level value" and "compensating for image brightness in a scanned image of the document", etc., or to limit the steps of "scanning a document to determine a plurality of actual gray level values", "scanning a continuous longitudinal calibration pattern", "determining a compensational gray level value" and "compensating for image brightness in a scanned image of the document", etc., for transforming underlying subject matter (such as an article or material) to a different state or thing. Thus, the method for image compensation would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine, i.e. a set of algorithm or a set of procedures without a machine for execution. Claims 4 and 7 are directed to a method claim and recite similar limitations as claim 1. Thus, claims 4 and 7 are rejected under 35 USC 101 because these claims do not meet the 101 statutory requirements. Claims 2 and 3 are dependent claims to claim 1, claims 5 and 6 are dependent claims to claim 4, and claims 8 and 9 are dependent claims to claim 7. Claims2, 3, 5, 6, 8 and 9 are rejected under 35 U.S.C. 101 because of its dependency to claims 1, 4, and 7, respectively.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 10, 15, 18, 19, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) in view of Su (6,233,011).

Regarding claim 1.

Lee' 015 discloses a method, comprising: scanning a document to determine a plurality of actual gray level values for a plurality of pixels of scanned from the document (**Lee' 015 discloses a method to have an optical ruler located along the scanning direction thus both document and the optical ruler are scanned and gray values of both objects are obtained, Figs. 1-3 and col 2, lines 5-16 and lines 37-59 and col 4, lines 20-45**); scanning a continuous longitudinal calibration pattern while scanning the document to determine a correctional gray level value associated with the calibration pattern (**i.e. gray level value is derived as the image sensor moves along the test black and white pattern as shown in Fig. 1, col 2, lines 1-16**).

Lee' 015 does not disclose determining a compensational gray level value with respect to the actual gray level value for each of the pixels, wherein the compensational gray level value is based at least in part on the correctional gray level and the actual gray level values for each of the pixels scanned from the document; and compensating

for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels.

In the same field of endeavor, Su' 011 teaches determining a compensational gray level value with respect to the actual gray level value for each of the pixels (**i.e. compensational gray level value is calculated for the actual gray level value obtained through image scanning, col 4, lines 34-67**), wherein the compensational gray level value is based at least in part on the correctional gray level (**i.e. correctional gray value is obtained through the method described in Fig. 4 and col 5, lines 21-30**) and the actual gray level values for each of the pixels scanned from the document (**i.e. actual gray value is obtained through scanning, col 4, lines 34-51**); and compensating for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels (**i.e. the white-value of each pixel is compensated, col 3, line 61 to col 5, line 30**).

Having a method of Lee' 015 reference and then given the well-established teaching of Su' 011 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Lee' 015 reference to include determining a compensational gray level value with respect to the actual gray level value for each of the pixels, wherein the compensational gray level value is based at least in part on the correctional gray level and the actual gray level values for each of the pixels scanned from the document; and compensating for image brightness in a scanned image of the document using the compensational gray level value for each of the pixels as taught by Su' 011 reference since doing so would increase the versatility of

the method provided by Lee' 015 for image quality improvement, and further the services provided could easily be established for one another with predictable results.

Regarding claim 2, in accordance with claim 1.

Lee' 105 discloses a top (**e.g. top housing of Fig. 1, col 2, lines 37-58**); a scanning chassis configured to be movable under the top along a scanning path (**e.g. moving image sensor is configured to move and to read image information, Abstract, col 3, line 65 to col 4, line 7**); and a scanning platform disposed at the top (e**.g. top housing of the scanner, Fig. 1 & col 2, lines 37-58**), wherein the scanning platform is configured to support the document above the scanning chassis (**e.g. scanning side of the document is on the top of the glass facing the transparent window, Fig. 1, col 2,lines 37-58**), wherein the calibration pattern is positioned along a lateral side of the scanning platform (**e.g. optical rulers is along the scanning platform, Fig. 1, col 1 line 66 to 2, line 16**), and extends continuously along substantially an entire length of the scanning path (**e.g. referring to Fig. 1, the test pattern is extents along the scanning path in the surface side of top chassis, col 2, lines 37-58**).

Regarding claim 10.

Lee discloses a scanning element configured to be moveable in a document scanning direction (**Lee' 015 discloses a method to have an optical ruler located along the scanning direction thus both document and the optical ruler are scanned and gray values of both objects are obtained, Figs. 1-3 and col 2, lines 5-16 and lines 37-59 and col 4, lines 20-45**); a scanning platform configured to support a

document (**referring to Fig. 1, top housing of scanner 101 has a transparent window 102, on which a document to be scanned, col 2, line 35-58**); a reference pattern disposed adjacent to the scanning platform, where the reference pattern is at least as long as the scanning platform in the document scanning direction (**referring to Fig. 1, a reference pattern 103 is disposed along the scanner platform in the direction of document scanning**).

Lee does not discloses a processor configured to determine actual gray level values for pixels of a scanned image of the document; determine a correctional gray level value based at least in part on a scanned image of the reference pattern; determine a compensational gray level value for the pixels of the scanned image based at least in part on the actual gray level and the correctional gray level; and compensate the scanned image using the compensational gray level value.

Su teaches a processor (**i.e. microprocessor 10 of Fig. 2 and Microprocessor 36 of Fig. 3**) configured to determine actual gray level values for pixels of a scanned image of the document (**the actual gray level value is obtained through image scanning, col 4, lines 34-40**); determine a correctional gray level value based at least in part on a scanned image of the reference pattern (**i.e. compensational gray level value is calculated for the actual gray level value obtained through image scanning, col 4, lines 34-67**); determine a compensational gray level value for the pixels of the scanned image based at least in part on the actual gray level and the correctional gray level (**i.e. compensational gray level value is calculated for the actual gray level value obtained through image scanning, col 4, lines 34-67**); and

compensate the scanned image using the compensational gray level value (**i.e. compensated gray-scale value is obtained, col 4, lines 53-65**).

Having an apparatus of Lee' 015 reference and then given the well-established teaching of Su' 011 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lee' 015 reference to include a processor configured to determine actual gray level values for pixels of a scanned image of the document; determine a correctional gray level value based at least in part on a scanned image of the reference pattern; determine a compensational gray level value for the pixels of the scanned image based at least in part on the actual gray level and the correctional gray level; and compensate the scanned image using the compensational gray level value as taught by Su' 011 reference since doing so would improve the versatility of the apparatus for generating image data for gray level calibration process and further the services provided could easily be established for one another with predictable results.

Regarding claim 15, in accordance with claim 1.

Lee discloses wherein the scanning element is configured to scan both the reference pattern and the document at the same time (**referring to Fig. 1, both the reference pattern and the document are scanned in the same time, col 4, lines 20-45**).

Regarding claim 18, in accordance with claim 10.

Lee' 015 teaches wherein a length of the reference pattern is parallel to the scanning direction and equal to or greater than a length of the scanning platform (Fig. 1, col 2, lines 37-58).

Regarding claim 19.

Applicant is intended to activate 35 USC 112, 6th paragraph by using "means for" phrase. However, the examiner does not considered claim 19 meets the 3-prong requirements, i.e. (a) the claim limitation must use the phrase "means for" or "step for": (b) the "means for" or "step for" must be modified by functional language; and (c) the phrase "means for" or "step for" must not be modified by sufficient structure, material, or acts for achieving the specified function.

Claim 19 is directed to an apparatus claim which substantially corresponds to operation of the device in claim 10. Thus, claim 19 is rejected as set forth above for claim 10.

Regarding claim 20, in accordance with claim 19.

Regarding **claim 20**, the structure elements of apparatus claim 18 perform all steps of apparatus claim 20. Thus claim 20 is rejected under 103(a) for the same reason discussed in the rejection of claim 18.

Regarding claim 24, in accordance with claim 19.

Regarding **claim 24**, the structure elements of apparatus claim 15 perform all steps of apparatus claim 24. Thus claim 24 is rejected under 103(a) for the same reason discussed in the rejection of claim 15.

7. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) (Lee' 015) in view of Su (6,233,011) as applied to claim 1 above, and further in view of Selby (US, 5,404,232) and Horiuchi et al (US 6,445,469).**

Regarding claim 3, in accordance with claim 1.

Lee discloses scanning a continuous longitudinal calibration pattern while scanning the document to determine a correctional gray level associated with the calibration pattern (**Lee' 015 discloses a method to have an optical ruler located along the scanning direction thus both document and the optical ruler are scanned and gray values of both objects are obtained, Figs. 1-3 and col 2, lines 5-16 and lines 37-59 and col 4, lines 20-45**), wherein the first correctional gray level is for black, wherein the second correctional gray level is for white (**referring to Fig. 1, where black and white patterns are shown and corresponding gray values are shown in Fig. 3**).

Lee does not disclose a second continuous longitudinal calibration pattern, wherein the first correctional gray level is for black, wherein the second correctional gray level is for white; and calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for black) ÷ (the correctional gray level value for complete white - the correctional gray level value for black) * (a theoretical gray level value for complete white - a theoretical gray level value for black)].

Selby teaches a second continuous longitudinal calibration pattern, wherein the first correctional gray level is for black, wherein the second correctional gray level is for

white (**referring to Figs. 2 and 5, where white test strip 30 and black test strip 32 are shown and corresponding gray value for black and white are determined, col 4, lines 37-66**).

Horiuchi' 469 discloses calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for black) ÷ (the correctional gray level value for complete white - the correctional gray level value for black) * (a theoretical gray level value for complete white - a theoretical gray level value for black)] (**Horiuchi teaches and suggests embodiments, e.g. First, Third to Eleventh, for using equations, col 9, lines 50-60, and subroutines A1, A2 and A3 for determining compensational gray level, Figs. 9, 16, 25, 26, 27 and 28, cols 9 through 12**).

Having a method of Lee' 015 reference and then given the well-established teaching of Selby' 232 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Lee' 015 reference to include a second continuous longitudinal calibration pattern, wherein the first correctional gray level is for black, wherein the second correctional gray level is for white as taught by Selby, since doing so would have improved the method of Lee to allow the system for adjusting the gain level and the offset level (col 4, lines 9-14, Selby); and then would have modify the combination of Lee, Su and Selby to include calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for complete black) ÷ (the correctional gray level value for complete white - the correctional gray level value for complete black) * (a theoretical

gray level value for complete white - a theoretical gray level value for complete black)] as taught by Horiuchi' 469 reference since doing so would increase the versatility of the method of Lee' 015 and further the calculation provided could easily be established for one another with predictable results.

8. **Claims 4, 5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) (Lee' 015) in view of Selby (US 5,404,232) (Selby' 232) and further in view of Chien (6,480,306)**.

Regarding claim 4.

Lee discloses a method, comprising:

scanning a document and a continuous longitudinal pattern, at the same time (**Lee' 015 discloses a method to have an optical ruler located along the scanning direction thus both document and the optical ruler are scanned and gray values of both objects are obtained, Figs. 1-3 and col 2, lines 5-16 and lines 37-59 and col 4, lines 20-45**); determining a plurality of actual gray level values for a plurality of pixels scanned from the document (**i.e. number of black and white pixels and their position are derived from the gray levels which are determined from a center of a white pixel and to a center of black pixel, col 4, lines 40-45 and Fig. 3**).

Lee does not disclose a longitudinal white pattern; and determining a correctional gray level value for white based at least in part on the longitudinal white pattern; determining a compensational gray level value with respect to the actual gray level

values for each of the pixels based at least in part on the correctional gray level value for white, a theoretical gray level value for white, and the actual gray level values for each of the pixels; and compensating a scanned image of the document using the compensational gray level value for each of the pixels.

Selby teaches a longitudinal white pattern (**Referring to Figs. 2 and 5, Selby discloses a longitudinal White Test Strip 30, col 4, lines 25-36**).

Chien teaches determining a correctional gray level value for white based at least in part on the white pattern (**i.e. referring to Figs. 1 and 2, the corresponding gray level x of the scanned object can be determined, col 1, lines 35-59, and col 4, line 45 to col 5, line 55**); determining a compensational gray level value with respect to the actual gray level values for each of the pixels based at least in part on the correctional gray level value for white, a theoretical gray level value for white, and the actual gray level values for each of the pixels (**i.e. the compensational gray level value with respect to the actual or scanned gray value is then calculated as shown in col 5, lines 40-50**); and compensating a scanned image of the document using the compensational gray level value for each of the pixels (**i.e. the compensational gray level value with respect to the actual or scanned gray value is then calculated as shown in col 5, lines 40-50 is applied to all pixels, col 4, line 67 to col 5, line 50**).

Regarding claim 5, in accordance with claim 4.

Lee' 105 discloses a top (**e.g. top housing of Fig. 1, col 2, lines 37-58**); a scanning chassis configured to be movable under the top along a scanning path (**e.g. moving image sensor is configured to move and to read image information,**

Abstract, col 3, line 65 to col 4, line 7); and a scanning platform disposed at the top (e**.g. top housing of the scanner, Fig. 1 & col 2, lines 37-58**), wherein the scanning platform is configured to support the document above the scanning chassis (**e.g. scanning side of the document is on the top of the glass facing the transparent window, Fig. 1, col 2,lines 37-58**), wherein the calibration pattern is positioned along a lateral side of the scanning platform (**e.g. optical rulers is along the scanning platform, Fig. 1, col 1 line 66 to 2, line 16**), and extends continuously along substantially an entire length of the scanning path (**e.g. referring to Fig. 1, the test pattern is extents along the scanning path in the surface side of top chassis, col 2, lines 37-58**).

Regarding claim 7.

Claim 7 is directed to a method claim which substantially corresponds to the steps of the method in claim 4. Thus, claim 7 is rejected as set forth above for claim 4.

Regarding claim 8, in accordance with claim 7.

Regarding **claim 8**, the structure elements of method claim 5 perform all steps of method claim 8. Thus claim 8 is rejected under 103(a) for the same reason discussed in the rejection of claim 5.

9. **Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) (Lee' 015) in view of Selby (US 5,404,232) (Selby' 232) and further in view of Chien (6,480,306) as applied to claims 4 and 7 and further in view of Horiuchi et al (US 6,445,469).**

Regarding claim 6, in accordance with claim 5.

Lee discloses scanning a continuous longitudinal calibration pattern while scanning the document to determine a correctional gray level associated with the calibration pattern (**Lee' 015 discloses a method to have an optical ruler located along the scanning direction thus both document and the optical ruler are scanned and gray values of both objects are obtained, Figs. 1-3 and col 2, lines 5-16 and lines 37-59 and col 4, lines 20-45**), wherein the first correctional gray level is for black, wherein the second correctional gray level is for white (**referring to Fig. 1, where black and white patterns are shown and corresponding gray values are shown in Fig. 3**).

Lee does not disclose a second continuous longitudinal calibration pattern, wherein the first correctional gray level is for black, wherein the second correctional gray level is for white; and calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for black) ÷ (the correctional gray level value for complete white - the correctional gray level value for black) * (a theoretical gray level value for complete white - a theoretical gray level value for black)].

Selby teaches a second continuous longitudinal calibration pattern, wherein the first correctional gray level is for black, wherein the second correctional gray level is for white (**referring to Figs. 2 and 5, where white test strip 30 and black test strip 32 are shown and corresponding gray value for black and white are determined, col 4, lines 37-66**).

Horiuchi' 469 discloses calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for black) ÷ (the correctional gray level value for complete white - the correctional gray level value for black) * (a theoretical gray level value for complete white - a theoretical gray level value for black)] (**Horiuchi teaches and suggests embodiments, e.g. First, Third to Eleventh, for using equations, col 9, lines 50-60, and subroutines A1, A2 and A3 for determining compensational gray level, Figs. 9, 16, 25, 26, 27 and 28, cols 9 through 12**).

Having a method of Lee' 015 reference and then given the well-established teaching of Selby' 232 reference, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Lee' 015 reference to include a second continuous longitudinal calibration pattern, wherein the first correctional gray level is for black, wherein the second correctional gray level is for white as taught by Selby, since doing so would have improved the method of Lee to allow the system for adjusting the gain level and the offset level (col 4, lines 9-14, Selby); and then would have modify the combination of Lee, Su and Selby to include calculating [(each of the actual gray level values with respect to each of the pixels - the correctional gray level value for complete black) ÷ (the correctional gray level value for complete white - the correctional gray level value for complete black) * (a theoretical gray level value for complete white - a theoretical gray level value for complete black)] as taught by Horiuchi' 469 reference since doing so would increase the versatility of the

method of Lee' 015 and further the calculation provided could easily be established for one another with predictable results.

Regarding claim 9, in accordance with claim 7.

Regarding **claim 9**, the structure elements of method claim 6 perform all steps of method claim 9. Thus claim 9 is rejected under 103(a) for the same reason discussed in the rejection of claim 6.

10. **Claims 12, 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) in view of Su (6,233,011) as applied to claims 10 and 20 above, and further in view of Selby (US 5,404,232) (Selby' 232) and of Chien (6,480,306)**

Regarding claim 12, in accordance with claim 10.

Lee discloses wherein the reference pattern comprises a continuous pattern elongated in a direction parallel with the document scanning direction and a continuous white pattern elongated in a direction parallel with the document scanning direction and positioned adjacent to the continuous pattern (**i.e. referring to Fig. 1, which shows a continuous pattern parallel with document scanning direction**).

Lee does not disclose a continuous black pattern; and wherein the processor is further configured to determine a black correctional gray level value from the continuous black pattern and determine a white correctional gray level value from the continuous white pattern.

Selby teaches a continuous black pattern (**referring to Figs. 2 and 5, which show a continuous black pattern**); and

Chien teaches wherein the processor (**i.e. processing unit 36 of Fig. 4**) is further configured to determine a black correctional gray level value from the continuous black pattern and determine a white correctional gray level value from the continuous white pattern (**i.e. black or dark and white correctional gray level values are determined, col 4, lines 34-67**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Lee' 015 to include a continuous black pattern taught by Selby' 232 to improve the system gain and offset of scanner with a predictable result; and then to modify the combination of Lee's to include the processor is further configured to determine a black correctional gray level value from the continuous black pattern and determine a white correctional gray level value from the continuous white pattern as taught by Chien' 306 since doing so would improve the gray level value compensation and therefore to improve image quality with a predictable result.

Regarding claim 13, in accordance with claim 12.

Lee does not discloses wherein the processor is further configured to determine the compensational gray level value based at least in part on the black correctional gray level value, the white correctional gray level value, a theoretical gray level value for black, a theoretical gray level value for complete white, and the actual gray level values.

Chien teaches wherein the processor is further configured to determine the compensational gray level value based at least in part on the black correctional gray

level value (**i.e. corresponding gray level value of the scanned objected is compensated with a correction value, col 1, lines 35-59**), the white correctional gray level value (**i.e. corresponding gray level value of the scanned objected is compensated with a correction value col 1, lines 35-59**), a theoretical gray level value for black (**i.e. corresponding gray level value of the scanned objected is compensated with a correction value with theoretical value, i.e. dark corrective element is defined as "0", col 1, lines 35-59**), a theoretical gray level value for complete white and the actual gray level values (**i.e. the actual gray value before compensation of the scanned object is X, Fig. 2, col 1, line 64 to col 2, line 14 and corresponding gray level value of the scanned objected is compensated with a correction value with theoretical value, i.e. white corrective element is defined as "255", col 1, lines 35-59**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Lee' 015 to include the processor is further configured to determine the compensational gray level value based at least in part on the black correctional gray level value, the white correctional gray level value, a theoretical gray level value for black, a theoretical gray level value for complete white, and the actual gray level values as taught by Chien' 306 to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device.

Regarding claim 21, in accordance with claim 20.

Regarding **claim 21**, the structure elements of apparatus claim 12 perform all steps of apparatus claim 21. Thus claim 21 is rejected under 103(a) for the same reason discussed in the rejection of claim 12.

11. **Claims 14, 16, 17, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 6,178,015) in view of Su (6,233,011) as applied to claims 10 and 20 above and further in view of Selby (US 5,404,232) (Selby' 232) and Chien (6,480,306).**

Regarding claim 14, in accordance with claim 10.

Regarding **claim 14**, Lee' 015 does not disclose wherein the reference pattern comprises a continuous black pattern, and wherein the processor is further configured to determine a black correctional gray level value from the continuous black pattern.

Selby teaches a continuous black pattern (**i.e. referring to Figs. 2 and 5, where continuous black and white patterns are disclosed**).

Chien wherein the processor is further configured to determine a black correctional gray level value from the continuous black pattern (**i.e. dark or black corrective element is defined as "0" and the corresponding black correction value is determined, col 1, lines 35-59**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Lee' 105 to include a continuous black pattern as taught by Selby' 232 since doing so would enhance the apparatus of Lee' 105 to provide

gray level measurement of black reference pattern for scanner calibration with predictable result; then to modify the combination of Lee's to include the processor is further configured to determine a black correctional gray level value from the continuous black pattern as taught by Chien' 306 to improve the functionality of the scanner with a predictable result.

Regarding claim 16, in accordance with claim 10.

The structure elements of apparatus claim 16 perform all steps of apparatus claim 14. Thus claim 16 is rejected under 103(a) for the same reason discussed in the rejection of claim 14.

Regarding claim 17, in accordance with claim 16.

Regarding **claim 17**, Lee' 105 does not disclose wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value, a theoretical gray level value for white, and the actual gray level values.

Chien' 306 discloses wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value (**e.g. determining for white or black correction level, col 1, lines 35-59 and col 4, lines 34-65**), a theoretical gray level value for white (**i.e. a theoretical value of white is defined "255"**), and the actual gray level values (**i.e. the compensational gray value is determined based on the defined correctional value and the scanned value, col 4, line 34 to col 5, line 50**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Lee' 105 to include wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value, a theoretical gray level value for white, and the actual gray level values as taught by Chien' 469 to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device.

Regarding claim 22, in accordance with claim 20.

Regarding **claim 22**, the structure elements of apparatus claim 14 perform all steps of apparatus claim 22. Thus claim 22 is rejected under 103(a) for the same reason discussed in the rejection of claim 14.

Regarding claim 23, in accordance with claim 20.

Regarding **claim 23**, the structure elements of apparatus claim 16 perform all steps of apparatus claim 23. Thus claim 23 is rejected under 103(a) for the same reason discussed in the rejection of claim 16.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120

and fax number is 571-270-2120. The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Steven Kau/
Examiner, Art Unit 2625
5/4/2009

/David K Moore/
Supervisory Patent Examiner, Art Unit 2625